

I CLAIM:

1. A wood-turning lathe comprising:

a bed;

a headstock housing mounted on said bed;

5 a motor unit mounted in said headstock housing,
and including a rotor;

a spindle journaled to said headstock housing,
extending co-axially through said rotor, and having
an output end extending outwardly from said
10 headstock housing;

a drive shaft journaled to said headstock
housing, parallel to said spindle, and having an
outer coupling end that extends outwardly from said
headstock housing, and an inner coupling end that
15 is opposite to said outer coupling end and that is
disposed within said headstock housing;

a torque converter including a first wheel that
co-axially surrounds said spindle and that is
securely and co-axially coupled to said rotor so as
20 to co-rotate with said rotor, a second wheel mounted
securely and co-axially on said inner coupling end
of said drive shaft, and a transmission belt trained
on said first and second wheels, said first wheel
having a diameter less than that of said second wheel
25 so that a torque ratio of said drive shaft to said
rotor is greater than one; and

a speed change device including

a first pulley unit mounted on said outer coupling end of said drive shaft, and including a first fixed pulley and a first movable pulley, said first fixed and movable pulleys cooperatively defining therebetween a radially and outwardly diverging first belt-engaging surface,

a second pulley unit mounted on said output end of said spindle, and including a second fixed pulley and a second movable pulley which cooperatively define therebetween a radially and outwardly diverging second belt-engaging surface, and

a non-elastic belt trained on and in frictional contact with said first and second belt-engaging surfaces so as to permit power transmission from said drive shaft to said spindle.

2. The wood-turning lathe as defined in Claim 1, wherein said torque converter further includes a hollow coupler shaft that co-axially surrounds said spindle and that is co-axially and securely connected to said rotor for co-rotation therewith, said first wheel being integrally formed on said coupler shaft.

3. The wood-turning lathe as defined in Claim 2, further comprising a control unit mounted on said headstock housing and including an operable knob exposed from said headstock housing and operably

associated with said first movable pulley of said
first pulley unit in such a manner that rotation of
said operable knob results in axial movement of said
first movable pulley along said drive shaft toward
5 and away from said first fixed pulley and
consequently results in movement of said non-
elastic belt along said first and second belt-
engaging surfaces of said first and second pulley
units.